# Latino Immigrants, Acculturation, and Local Food Systems: Examination of Food Habits and Community Connections

Senior Honors Thesis

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**Abstract**

First generation Latino immigrants in the United States often live in highly segregated and low socioeconomic status neighborhoods. While subsequent Latino generations who are born in the U.S. are likely to live in less segregated areas and achieve *some* higher standards of social mobility, Latino immigrants themselves can face acculturation and integration challenges and stressors. Latino immigrants may have more successful acculturation through the establishment of integration strategies designed to foster social capital and improve community connections. Participation in local food systems (LFS) may serve as one strategy that promotes integration, builds social capital, enhances community engagement and support, and improves access to fresh, healthy foods. The purpose of this study was to examine the relationship between LFS participation and food insecurity level; the relationships among LFS participation, community connections, and acculturation; and the factors related to LFS participation among Latino immigrants. Findings suggest that LFS participation is significantly and positively related to community connections variables (i.e. both within and outside group community engagement and sense of community). The community connections variables also were significantly related to acculturation. No significant relationships were found between LFS participation and acculturation. Additionally, food insecurity scores were not related to any of the variables. Path models were conducted using LISREL 8.80 software to explore mediators between LFS participation and acculturation. The best fit was found for the model where the relationship between LFS participation and acculturation was mediated by community engagement outside of cultural/ethnic group. Last, a multiple linear regression analysis was used to examine the food source factors related to LFS participation. Two predictor variables had significant relationships with LFS participation, including food source proximity and opportunities for social experiences.

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# CHAPTER ONE

## Introduction

Presently, there are nearly 40, 500, 000 immigrants in the United States, making up 13% of the total U.S. population (*Selected social characteristics*, 2011). People migrate to the U.S. from all regions of the world, but more than half of the immigrants who move the U.S. are from Latin America. Latin American immigrants, or Latino immigrants, make up about 52% of the U.S. immigrant population, while the second largest immigrant group, Asians, make up just 28% of the immigrant population (*Selected social characteristics*, 2011). Despite the fact that the majority of immigrants in the U.S. are Latino, less than half (37%) of Latino individuals are immigrants (Motel & Patten, 2012).

A common thread pushing many Latino immigrants to the U.S. is the desire to escape intense poverty and to seek better work and life opportunities. However, Latino immigrants often face a different kind of poverty and additional hardships upon settling in the U.S. Indeed, in a nation with about 15% of the population living below the poverty line (DeNavas-Walt, Proctor, & Smith, 2012), Latinos have a much higher rate of poverty. In fact, about 25% of Latino households in the U.S. live below the federal poverty line (DeNavas-Walt, Proctor, & Smith, 2012). USDA statistics on food security in the U.S. present similar concerns. Almost 15% of all households are food insecure, while slightly more than 25% of all Latino households are food insecure (Coleman-Jensen, Nord, Andrews, & Carlson, 2012). While Latino immigrants move to the U.S. for a multitude of reasons, including to find better work and to improve standards of living, it may be the case that many of these immigrant families continue to face economic hardship upon settling in the U.S. In addition to facing economic hardships, Latino immigrants may face social and psychological hardships, which when acting together

may create an environment in which Latino immigrants struggle to successfully acculturate to U.S. society.

**Acculturation**

Latino immigrants must navigate a myriad of societal and personal strengths and challenges that help or hinder their adaptation to a new society. Like any other immigrant group, Latino immigrants in the U.S. encounter a culture and society that is most likely very different from what they are used to. Therefore, Latino immigrants must go through a process of acculturation, or a "process of cultural and psychological change" (Berry, 2005, p. 698). According to Berry, there are four different acculturation strategies, including assimilation, separation, marginalization, and integration (1997).

The four acculturation strategies in part require a choice by immigrants as to what degree they desire to maintain their culture and/or to identify with a new one. According to Berry (1997), the acculturation strategy of assimilation is defined as valuing frequent engagement with the host society over maintaining one's original cultural identity. Opposite of assimilation is separation, which is characterized by valuing maintenance of one's original cultural identity in place of interacting with the host society. In other words, immigrants who seek to fully become a part of the host society and de-indentify from their culture of origin are seeking assimilation, while those who desire to fully maintain their cultural heritage and not associate with the host society are choosing separation.

In addition to the above acculturation strategies, there two other opposing strategies of acculturation: marginalization and integration. Berry's definition of marginalization includes immigrants who do not maintain their cultural heritage, and at the same time neglect to interact with the host society (1997). Alternatively, integration is defined as maintaining certain aspects

of one's cultural heritage while striving to meaningfully interact with the host society (Berry, 1997). While immigrants who do not identify with their original culture or the host society may become marginalized, immigrants who seek a balance of the two may become integrated into mainstream society.

Berry (2005) concluded that the process of *integration* is the least stressful for immigrants. In other words, choosing to interact with the host society, while maintaining aspects of one's original cultural identity, has been found to result in the least amount of acculturative stress for individuals. In order to facilitate integration at a societal level mutual engagement and cohesion between the host society and the immigrant group should occur. For instance, the host society may show welcome and support for immigrant groups by adjusting education policies to enable at-risk immigrants to succeed in school. At the same time, immigrants may adhere to the U.S. societal value of obtaining higher education. In order for successful integration to occur, the host society must accept the immigrant group and make changes in society that benefit and support the group, and the immigrant group must make adjustments as well (Berry, 1997; Berry, 2005).

Integration policies may be beneficial in helping Latino immigrants acculturate to U.S. society. Massey has proposed a theory that as immigrants acculturate into a society and gain in social mobility, ethnic neighborhood segregation decreases (1985). The literature on Latino acculturation suggests that while Latino generations may gain in social mobility, there is still evidence that Latino immigrants may struggle to integrate into mainstream U.S. society. For instance, first-generation Latino immigrants generally live in more highly segregated and high-poverty neighborhoods than second-generation Latinos, an indication that subsequent Latino generations do in fact gain in social mobility (Iceland & Scopilliti, 2008; Lichter, Parisi,

Taquino, & Grice, 2009). However, Park and Myers (2010) suggest that Latinos struggle to meet societal standards of certain indicators of social mobility like homeownership, occupational status, and education level. More specifically, Park and Myers found that while second-generation Latinos closed the poverty level gap between first-generation Latinos and the societal standard, this same generation did not close the gap for homeownership, high occupations, or education (2010). For instance, second-generation Latinos are generally more highly educated than first-generation Latinos, yet second-generation Latinos still lag behind educational levels of native-born, white Americans (Park & Myers, 2010). While Latinos may live in less segregated neighborhoods over the span of generations as a result of social mobility, as Massey (1985) suggests, this population still has not completely closed social gaps when compared to native-born, white Americans. Promoting an acculturation strategy of integration could aid Latino immigrants in adjusting to U.S. society, eventually living in even more assimilated and lower-poverty neighborhoods, and matching the U.S. mainstream in standards like education level and occupation.

There are several indicators and agencies of integration, such as bridging and bonding social capital, social cohesion, community interaction and engagement, language preference, socioeconomic status, citizenship, and education (Cheong 2006; Cheong, Edwards, Goulbourne, & Solomos, 2007; Forrest & Kearns, 2001; Spoonley, Peace, Butcher, & O'Neill, 2005). One strategy of integration that is of particular interest for this study is community engagement. This is grounded in the idea that social networks and social interaction (facets of social capital) may aid in the integration process, and therefore certain social actions, like community engagement, may act as facilitators of integration. Community engagement is beneficial because of its potential to empower individuals and society to enhance human bonds and maintain or generate

control over space, as well as to "secure daily requirements and respond to changing needs and conditions" (Matarrita-Cascante & Brennan, 2011, p. 6).

There are multiple ways in which individuals or groups can engage in and form community. One way to engage in the community is to participate in alternative food systems, or local food systems (LFS) in particular (Matarrita-Cascante & Brennan, 2011). Alternative food systems are those that are outside of the conventional, dominant food system that society is familiar with. Feenstra (2002) has described alternative food systems as, "more environmentally sound, more economically viable for a larger percentage of community members, and more socially, culturally, and spiritually healthful. They tend to be more decentralized, and invite the democratic participation of community residents in their food systems" (p. 100). A defining aspect of alternative food systems is LFS, or systems that draw from the unique resources of certain regions to create environmentally, economically, and socially sustainable food systems (Feenstra, 2002).

There are many facets of LFS, such as Community Supported Agriculture (CSA), farmers' markets, community gardens, organic urban farming, and farm stands (Gottlieb & Joshi, 2010; Holt-Gimenez, 2011; Kaiser, 2011). In addition to these aspects of LFS, alternative food acquisition sources also include food pantries and soup kitchens, relatives, churches, and other places where food is distributed to people in need. Literature on the benefit of LFS for communities is abundant, but little research has been done specifically on the impacts of LFS in immigrant communities. Furthermore, little research has examined the relationships between LFS, community engagement, and acculturation strategies. Therefore, the present study seeks to address this gap in the literature. This study examines the relationship between LFS participation and food insecurity level; relationships among LFS participation, community

connections, and acculturation; and the factors related to LFS participation among Latino immigrants in the U.S.

# CHAPTER TWO

## Literature Review

There is a large body of literature suggesting that facets of LFS can be beneficial to both society and to individuals. For instance, case studies correlate community garden involvement with an increase in vegetable and fruit consumption (Alaimo, Packnett, Miles, & Kruger, 2008; Litt, Soobader, Turbin, Hale, Buchenau, & Marshall, 2011; Ruelas, Iverson, Kiekel, & Peters, 2012). More specifically, one study completed in Michigan found that participants were receptive to school farmers markets and school gardens, suggesting that engagement with these facets of LFS might be a viable way to increase access to healthy foods, thus promoting healthy eating habits (Cyzman, Wierenga, & Sielawa, 2009).

In addition to influencing the healthy eating habits of participants, LFS may help decrease food insecurity risks in communities, especially in food deserts. LFS might do so in multiple ways. First, LFS facets like community gardens and farmers markets may increase the availability of healthy and local foods by simply being present. This was found in Michigan where a community with little access to grocery stores was introduced to community gardens and farmers markets. Researchers found that access to fruits and vegetables was increased as a result of the implementation of these LFS facets. Likewise, not only was the availability of such foods greater, but the cost was found to be reasonable and a driving factor in utilizing these LFS sources (Cyzman et al., 2009). A second study examined the ability of farmers markets to increase food access by comparing relative food availability throughout the year. It was found that during the months when farmers markets were open, low-income members of the community had greater access and proximity to fresh foods, when compared to the winter months when these folks had to rely on area food stores (Widener, Metcalf, & Bar-Yam, 2011).

This study is important to the literature, as it points to the benefit of year-round access to local foods. Communities can take such a study into consideration and develop programs and policies that increase the frequency and number of LFS outlets during all months of the year, thus reducing risks of food insecurity.

While LFS can improve the health and food access of individuals who use local food source, such sources may also act as educational venues, providing information on a variety of topics like nutritional health, land use, food cultivation, and the greater food system. The use of gardens as educational tools has been documented for both community gardens and school gardens, engaging both the greater community and youth in the discussion of the benefits of local foods (Cyzman et al., 2009; Ferris, Norman, & Sempik, 2001; Saldivar-Tanaka & Krasny, 2004). Studies also suggest that farmers' markets can increase awareness of the benefits of local foods, provide nutritional information, and foster understanding and support of local economies (Abel, Thomson, & Maretzki, 1999; Cyzman, et al., 2009; Ruelas et al., 2012).

A final benefit to consider is the ability of LFS to increase community engagement and connection to the community. Matarrita-Cascante and Brennan (2011) note that community gardening is an activity in which individuals and groups can build relationships as well as create a space that contributes to the needs and sustainability of the physical community. Engaging in community spaces, like gardens or farmers markets, may also improve individual physical and mental health while enhancing social networks. In a qualitative study, Cattell, Dines, Gesler, and Curtis (2007) found that use of public spaces reduced stress and brought relief to some informants. Community spaces also were found to have the potential to increase social bonds and create social bridges; however, the authors note the importance of policy to ensure that

bridging social capital (relationships outside of one's family and friend group) could be established (Cattell et al., 2007).

While community spaces may strengthen social bonds and establish social bridges, other studies substantiate Cattell et al.'s (2007) idea that bridging social capital requires effort and policy in order to create gains for all. Studies analyzing socioeconomic status and race in the context of public spaces have suggested that community gardens and farmers markets have the ability to facilitate social integration through purposeful inclusion and planning. For instance, in his study of multiple outlets of LFS, Macias (2008) finds that CSA's and farm stands are mainly utilized by highly-educated and middle-class folks, but that community gardening and farmers markets have the potential to attract folks from a variety of socioeconomic levels. Such a finding highlights the potential benefits of LFS to facilitate social integration, while at the same time pointing to the fact that special efforts may need to be made to allow this bridging social capital to actually occur. To follow, in Glover's (2004) study, a core group of community members created a community garden and invited the rest of the community to join in the effort. While there was an intention of including all residents to give input on the garden, underlying community issues and racial tensions limited the access of the gardening planning to the core members (Glover, 2004). In the case of LFS, creating policies that encourage and allow all members of a community to participate would not only build social capital, but would also ensure that all members of a community could have access to local, healthy foods.

In sum, there are myriad benefits of creating LFS and participating in them. Communities can see an increase in healthy eating and availability of fresh foods. Educational opportunities for youth and adults can abound, as gardens, farmers markets, and so on can provide lessons on ecological and economic systems. As community gardens and farmers

markets are established, they can act as positive public spaces where people of different backgrounds and interests can converge around common interests and goals. Communities can support such community engagement and social development by ensuring that local food sources are accessible and available to all members of a community. While the benefits of LFS are clear, additional research needs to be conducted to further explore how and if LFS are utilized in various communities and populations. There is a lack of research examining the relationships between LFS and the above mentioned benefits particularly within immigrant communities, including among Latino immigrant populations.

**LFS and Latino Immigrants**

There are several benefits of LFS, including increased healthy eating and food availability, creation of communal space, and social interaction and community engagement. While the benefits of LFS are widespread, there is a dearth of literature examining the factors that influence involvement in LFS, especially among the Latino immigrant population. Little research has even been conducted that examines the factors influencing *where* Latinos or other groups purchase or obtain their food. One study suggests that the location of food places and time of year may influence where individuals purchase or obtain their food. Widener et al. examined the presence of seasonal farmer's markets in an urban setting, concluding that during the warmer months low-income folks had greater access to food, simply because of the presence of near-by markets (2011). Another study utilized concept mapping with participants to come up with a list of factors that influenced what, where, and when individuals bought or obtained their food. A final list of 163 items was created, with eight broad clusters including health consciousness, personal decisions, time factors, special occasions, crime and safety, budget concerns, shopping concerns, and corner convenience (Walker, Block, & Kawachi, 2012).

While this study provides some information about food purchasing habits, the results do not explain specifically what influenced the location of where people obtained their food. In addition, the study was comprised of mostly non-Latinos.

While there is a lack of literature examining the factors that influence *where* Latino immigrants acquire their food, a great amount of research has looked at factors influencing *what* foods Latino immigrants purchase. Factors influencing what people purchase or obtain may be indicative of the factors that go into one's decision of where to get food, so the present study will be based on the factors determining what people purchase. One factor that may determine what foods Latino immigrants purchase is level of acculturation. Studies suggest that acculturation influences diet changes of immigrants and subsequent health implications, but studies exploring this relationship are inconclusive (Dave, Evans, Watkins & Pfeiffer, 2009; Pérez-Escamilla, 2011; Redstone Akresh, 2007; Sharkey, Dean, & Johnson, 2011) . While one study by Redstone Akresh (2007) indicates that diet changes and acculturation may correlate with either better or worse health, other studies have found the opposite to occur. Greater levels of acculturation have generally been found to correlate with lower levels of health, poor nutrition, and a lack of vegetable consumption, in addition to other negative health behaviors like tobacco and other drug use (Dave, et al., 2009; Pérez-Escamilla, 2011; Sharkey, et al., 2011). Not only should this relationship be further examined, but examining the relationship between Latino immigrants, acculturation, and food acquisition habits could be valuable to the literature as well.

Acculturation is not the only factor that may influence what foods Latino immigrants purchase. Related to acculturation level is the familiarity one has with certain foods, and the desire to eat such food, which also can have an impact on the types of food Latino immigrants purchase and obtain.

Familiarity with a food, or the desire to eat foods from one's homeland, may influence food purchasing habits of Latino immigrants. Evans et al. (2011) found that low-income, Spanish-speaking Latina mothers considered many factors when purchasing food, like the food's perceived healthfulness or convenience. However, familiarity with food items was one of the greatest factors that the participants considered when buying food. Another major factor was the price of food, which has been found to be a factor in food purchasing habits in several other studies as well. Specifically, studies have found that the high-cost of healthy foods may be a barrier to purchasing such foods (Cyzman et al., 2009; Kaiser, 2009; Lopez-Class & Hosler, 2010; Macias, 2008). If familiarity of food and the cost of food determine what people buy, it may be the case that these factors influence where people buy or obtain their food as well.

Another major factor that may determine what foods people buy or obtain is food store availability and proximity within a given neighborhood. Studies indicate that Latino neighborhoods are more likely to be food deserts than other neighborhoods, implying that food options are limited. In addition, Latinos may be unable to purchase or obtain familiar, cultural foods in the neighborhoods they live in, which can result in less fruit and vegetable consumption (Grigsby-Toussaint, Zenk, Odoms-Young, Ruggiero, & Moise, 2010; Mares, 2010; Widener et al., 2011). Alternatively, proximity of food locations or availability of certain food items may dictate *where* Latinos purchase or obtain their food.

In sum, engaging in LFS can be beneficial to any community, particularly Latino immigrant communities. As identified in the literature discussed above, benefits of LFS include their potential to increase healthy eating, increase food security, and provide access to fresh foods. In addition, LFS may encourage community engagement, foster community integration,

promote environmental education, and improve individual well-being. Little research has been done, however, that examines the factors influencing participation in LFS.

Because certain factors have been identified as influencing *what* foods Latino immigrants purchase, it may also be the case that these factors influence *where* Latino immigrants purchase or obtain the food, and therefore whether Latino immigrants participate in different aspects of LFS. Factors that have been identified in the literature such as familiarity, proximity, availability, healthfulness, and cost may all play a role in determining how and to what extent Latino immigrants engage in LFS. In addition to engagement in typical LFS facets like community gardens and farmers markets, it may be the case that Latino immigrants often engage in other alternative food acquisition habits, like food-sharing (Flora, Emery, Thompson, Prado-Meza, & Flora, 2011; Sharkey, Dean, & Johnson, 2011).

**Purpose of Study**

In summary, Latino immigrants arrive in the U.S. each year, seeking better jobs and standards of living than what they could obtain in their home countries. However, once in the U.S., many Latino households continue to struggle with issues of poverty and food insecurity. In addition, residential segregation remains high and social mobility low. These are indicators that successful acculturation into U.S. society may be a challenge for Latino immigrants. By using the acculturation strategy of integration, Latino immigrants may have a more successful acculturation process. There are multiple ways a society and an immigrant group can encourage or achieve integration, such as through community engagement, and specifically through engagement in LFS. Engaging in aspects of LFS may help Latinos build social capital in addition to improving access to food, especially healthy, fresh foods. Unfortunately, little research has been done to determine Latino immigrant involvement in LFS, or more simply,

where Latino immigrants acquire their food. The further examination of where Latino immigrants obtain their food can help researchers and policy makers determine what outlets are being over or under-utilized by this population. In addition, there is a lack of research examining how LFS can aid in acculturation and integration strategies among Latino immigrants. Specifically, little research has explored the relationships between acculturation and community connections, and how these two factors may be related to participation in LFS.

Therefore, the purpose of this study was to examine the relationships between LFS participation, food insecurity level, community connections, and acculturation; and the factors that may be related to LFS participation among Latino immigrants in the U.S. The specific research questions are as follows:

1. What is the relationship between LFS participation and food insecurity level?
2. What are the relationships among LFS participation, community connections, and acculturation?
3. What factors are related to LFS participation among Latino immigrants?

# CHAPTER THREE

## Methods

### Design

This study utilized a cross-sectional survey research design to answer the research questions. A self-administered questionnaire was given to 177 individuals, and this study is based on 118 surveys that contained complete data (68% of the sample).

### Sample

The study population included individuals who identified as Latino/a, and who were age 18 or older. No gender criterion was required for inclusion in the study. The sampling frame for the study included individuals who met the study requirements and lived in one of two specified geographic locations; participants were recruited in Columbus, Ohio and Salt Lake City, Utah. Churches, local non-profit organizations, community centers, and public schools located within these selected geographic areas were identified for participant recruitment procedures. The settings selected for this study were chosen because they are communities where the researchers had access to the churches, schools, and organizations that work with large populations of Latino individuals. Convenience samples from each of these locations served as the study sample.

A total of 177 individuals participated in the study, including 128 females (73.6%), 168 foreign-born (96%), and 102 living in the Salt Lake City area (61.1%). For final analysis, 118 surveys with complete data were used. Of this sample, 66.8% were 25-44 years of age, most participants had at least one child living in their home (77.1%), almost half (46.5%) of households made less than $20,000 a year, 50 (44%) individuals did not graduate from high school, 56.9% were identified as food insecure, and 55.9% scored in the lowest category of acculturation level.

**Procedures**

Researchers contacted community sites with large Latino populations, and ultimately collected data at two churches, three elementary schools, four Family Literacy Centers, and two Mexican markets. Participants were given a self-administered survey lasting 15-30 minutes. All participants received a $5.00 gift card as an incentive; individuals who returned the survey without completing it or who explained that they did not have time to continue the survey still received a gift card.

Both of the churches that were used as research sites were located in Columbus. At one of the churches, the study was presented and described to individuals in adult religious education classes, and potential participants were asked if they would like to volunteer to be in the study. A table was also set up in a central area of the building where the researchers asked adults who walked by if they were interested in taking a survey. A total of 49 participants were recruited on two different Sundays at this site. At the second church, an announcement was made during the service that the researchers were conducting a study, and after the service researchers stood in the lobby to ask adults if they were interested in taking the survey; 17 participants were recruited at this site.

Participants were also recruited at three after-school programs at three elementary schools in the Salt Lake City area. At each site, researchers sat at a table near the child pick-up table and asked all Spanish-speaking individuals who appeared to be over the age of 18 if they were interested in taking the survey. Individuals who inquired about the survey were asked if they identified as Latino/a and were over the age of 18 before researchers gave them the survey. A total of 37 participants were recruited at these afterschool programs.

In the Salt Lake City area, participants were also recruited at Family Literacy Centers where Spanish-language adult education courses are provided. Participants were recruited at four different adult education classes in two school districts. At each location, researchers described the study to the class and made sure potential participants knew the survey was voluntary before asking for participants. A total of 66 participants were recruited at the Family Literacy Centers.

At the Mexican markets, researchers asked individuals and groups of people who appeared to not be busy if they were interested in participating in a survey; a total of 8 individuals were recruited at the markets.

**Instrumentation**

A survey containing several scales and demographic questions was administered to study participants. The survey was available both in Spanish and English, with a majority of the surveys being completed in Spanish. The survey included measures of food security, community connections, and acculturation. Measures of food acquisition habits and factors influencing the use of various food sources, developed by the study author, were also included in the survey (see Appendix).

**Measures**

**Food Sources.** Questions were developed by the study author to examine the food sources where the study participants acquired food. A 16-item Likert scale was created that listed possible food sources then asked how often in the past year the participants obtained food from that source. Possible response included: *never*, *once a year*, *3 times a year*, *6 times a year*, *9 times a year*, *once a month*, and *once a week*. Food sources were grouped into four main categories of type of food source, including *conventional*, *alternative*, *neighborhood*, and *local*

food sources. Conventional food sources included grocery stores and supermarkets (i.e. Wal-Mart); alternative sources included fast food restaurants, family/friends, food pantries, Churches, and food trucks/taco trucks; neighborhood sources included corner stores and gas stations; and local food systems sources (LFS) included farmers markets, home gardens, community gardens, roadside farm stands, CSAs, and fishing/hunting. For each food source type scale, items were averaged for data analysis.

**Importance of Food Source Characteristics.** In order to examine the importance level of a variety of factors that may influence where people obtain food, the study author created a Likert scale with 16 items/factors, which was preceded by the question, "*When choosing where to get your food, how important is it to you that the source…"*. Items included statements such as, "*is close to your home", "offers food that you think is good for your health", "is a space for you to meet new people", and "offers food that you know how to cook"*. All of the items were grouped into five subscales according to the food source characteristic. These subscales included: *familiarity with a food, cost, food source availability/accessibility, healthfulness/quality of food,* and *social experiences*. Scale items were averaged for data analyses purposes.

**Community Connections.** The Community Connections Index (Mancini, Bowen, Martin, & Ware, 2003) contains two subscales measuring *sense of community* and *community engagement*. This scale was modified by the study author to include questions about connections both within one's cultural/ethnic group and outside one's cultural/ethnic group. This modification was made after consultation with the original survey author. The CCI is a 15-item Likert scale with four possible responses per item, including 0=never, 1=rarely, 2=sometimes, 3=often. The 15 items were preceded by the question, "How often in the past year have you…", and include statements such as "*spent time with people in your community from your ethnic or cultural group when you*

*needed a little company", "felt like you belonged within your ethnic or cultural group in your community", and "joined with people outside of you ethnic or cultural group in your community to solve community problems".* Responses to each subscale were totaled and averaged for final analysis.

**Food Security.** Questions were asked to assess the food security level of study participants. Food security as defined by the United States Department of Agriculture means, per household, "access by all members at all times to enough food for an active, healthy lifestyle", and includes the availability of nutritious foods that are accessible without the use of emergency food sources or acquisition strategies (Coleman-Jensen & Nord, 2012b). Food insecurity, then, is the inability to access healthy food or a reduced availability of such foods. The USDA *U.S. Adult Food Security Module*, a 10-item version of the full U.S. Household Food Security survey, was used in this study to reduce participant burden while still gaining a reliable and valid assessment of the food insecurity level of study participants (Coleman-Jensen & Nord, 2012a). For the purposes of this study, content from all 10 items was included in the survey but were condensed into 8 questions. This measure included three initial questions about the monetary funds available to purchase enough food and healthy food in the past year, with responses of "*often true", "sometimes true",* and *"never true*". The next three questions asked specifically if participants ever ate less food, felt hungry but did not eat, or lost weight due to not eating, with responses of *yes* and *no*. The next set of questions asked if participants had to skip meals or not eat for an entire day in the past year due to financial inability to acquire food, and the frequency of such occurrences, with responses of, *"yes, almost every month"*; "*yes, some months but not every month"*; "*only 1 or 2 months";* and *"no"*. Scores for food security level were computed by giving one point for each affirmative answer, for a total of 10 points. Scores of zero indicated

high food security, scores of 1-2 indicated marginal food security, scores of 3-5 indicated low food security, and scores of 6-10 indicated very low food security among adults. In other words, higher scores indicated a higher level of food *insecurity*.

**Acculturation.** There are a number of scales that can be used to measure the level of cultural change within individuals. This study utilized the Brief Acculturation Rating Scale for Mexican Americans (ARSMA) – II for Children and Adolescents (Bauman, 2005). The measure is comprised of 12 items assessing language usage and preference, as well as types of social relationships. This version of the ARSMA was chosen due to its brevity and ease of administration. The full ARSMA-II scale is comprised of 30 items, and the ARSMA-II short version is still comprised of 20 items. Additionally, the language of the full ARSMA-II and ARSMA-II short version are explicit in their orientation toward Mexicans or Mexican Americans, and the sample for this study included non-Mexican Latinos. The ARSMA measure used for this study includes the relevant proxy measures used across studies to assess acculturation, and allows specifically for the results to be scored both linearly and orthogonally, unlike other scales. Individual scores were assessed on a Mexican (Latino) Orientation Scale (MOS) and Anglo (non-Hispanic, White) Orientation Scale (AOS), but for final analysis, individual overall scale scores were used. Scores were determined by subtracting the MOS score from the AOS score (AOS mean – MOS mean). Resulting scores for individuals were then placed on a scale with five levels, with level 1 indicating a low score and a high Latino orientation, and level 5 indicating a high score and a high Anglo orientation.

**Demographics.** Multiple choice questions about participants were asked, such as age, gender, income level, education level, years lived in the U.S., and country of origin. These participant characteristics were included in the study not only to gain an understanding of the sample being

surveyed, but to explore whether these characteristics were factors related to the major variables of LFS participation, acculturation, community connections, and food insecurity.

**Knowledge of Local Food Sources.** Open-answered and yes/no questions developed by the study author also were included in the measurement instrument. Three questions explored participants' knowledge of community gardens and farmers markets in the community, as well as if the study participants grew their own food. These questions were used by the study author to gain a better understanding of participants' knowledge of LFS and how participants were engaged in LFS.

**Data Analysis**

ReMark Office Optimal Mark Recognition (OMR), a scanning software designed for the collection and management of data from paper forms, was used to input data into a secure computer. The data were immediately checked for errors in the ReMark interface before being analyzed using version 19 of SPSS and LISREL 8.80.

In order to answer research question one (What is the relationship between LFS participation and food insecurity level?), SPSS 19 was used to run correlations between food security scores and LFS participation scores. SPSS 19 was also used to run correlations to examine research question two (What are the relationships among LFS participation, community connections, and acculturation?). After relationships between the variables in research question two were determined using SPSS 19, researchers used LISREL 8.80 to create path models to determine if any of the variables were a mediator between LFS participation and acculturation. To answer research question three (What factors are related to LFS participation among Latino immigrants?), multiple linear regressions were used in SPSS 19. Subscales from the Importance of Food Source Characteristics Scale were used as the predictor variables for LFS participation.

# CHAPTER FOUR

## Results

The correlations presented in Table 1 show the results to research questions one and two. No significant relationship was found between LFS participation and food insecurity level (r= -.031, p>.05). In fact, food insecurity level was not significantly related to any of the variables presented in Table 1. Positive, significant relationships were found between LFS participation and community engagement within and outside of one's cultural/ethnic group (r= .235, p <.05 and r= .259, p< .05), as well as with sense of community outside of one's cultural/ethnic group (r= .203, p<.05). Linear acculturation scores were significantly and positively correlated with sense of community and community engagement outside of one's cultural/ethnic group (r= .330, p<.01, r= .333, p<.05). LFS participation and linear acculturation were not significantly related to each other (r= .099, p>.05).

Path models were used to examine potential mediator variables between LFS participation and linear acculturation scores. Community engagement outside of cultural/ethnic group was found to be the best-fit mediator between these two variables (*df* = 1; SB $X^2$= .03, *p*=.86; RMSEA= .00; CFI= 1.00) (Figure 1.) LFS participation was a significant (p<.05) predictor of community engagement outside cultural/ethnic group (β .26), which in turn was a predictor of acculturation (β .33), indicating that participation in LFS was significantly, indirectly related to acculturation (standardized indirect effect = .09); the total amount of variance explained in acculturation was 11%.

Results for research question three were determined using multiple linear regression analyses. Subscales of the Importance of Food Source Characteristics Scale were used as predictor variables in examining factors related to LFS participation, the dependent variable.

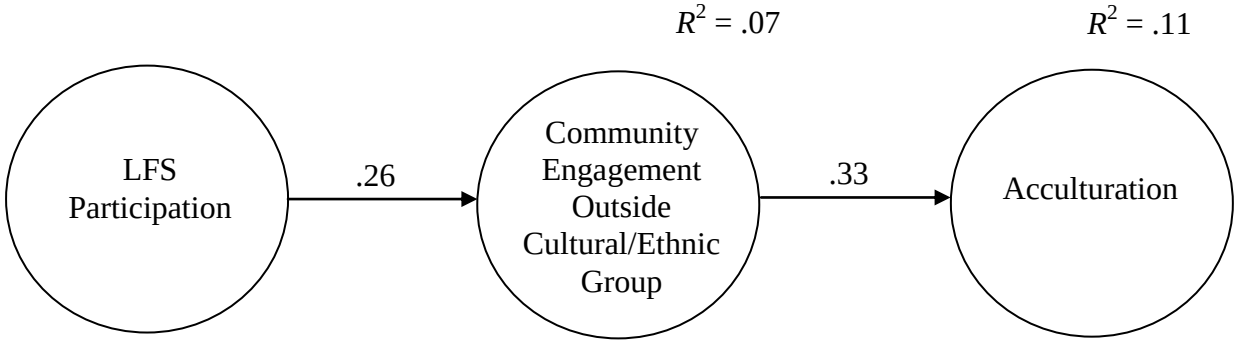
Food source characteristic subscales included familiarity, cost, proximity, healthfulness/quality, and opportunity for social experiences. The model accounted for 13% of the variance in LFS participation, $F(5, 111) = 3.24$, $p < .01$. Proximity and opportunities for social experiences both had significant ($p < .01$) relationships with LFS participation.

*Table 1. Correlations Among Variables*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Linear Acculturation Score | 1.00 | | | | | | |
| 2. LFS Participation | .099 | 1.00 | | | | | |
| 3. Food Insecurity | -.031 | .083 | 1.00 | | | | |
| 4. Sense of community in group | .088 | .170 | .041 | 1.00 | | | |
| 5. Community engagement in group | .122 | .235* | -.034 | .825* | 1.00 | | |
| 6. Sense of community outside group | .330** | .203* | -.012 | .566** | .544** | 1.00 | |
| 7. Community engagement outside group | .333* | .259* | .099 | .548** | .646** | .823** | 1.00 |
| *M* | -1.356 | .921 | 3.13 | 1.796 | 1.371 | 1.364 | 1.057 |
| *SD* | 1.207 | .778 | 2.39 | .669 | .709 | .747 | .752 |
| *Range* | (-)5-5 | 0-6 | 0-10 | 0-3 | 0-3 | 0-3 | 0-3 |

** p <.05 ** p <.01*

*Figure 1. Relationships Among LFS Participation, Community Connections, and Acculturation*



# CHAPTER FIVE

## Discussion

The results of this study suggest that LFS participation may have a beneficial role within Latino immigrant communities. Positive significant relationships among LFS participation, community connections, and acculturation among Latino immigrants in the U.S. were found. Increased participation in LFS was correlated with higher levels of sense of community and community engagement outside of one's cultural/ethnic group, as well as with higher levels of community engagement within one's cultural/ethnic group. Higher acculturation levels also were correlated with higher levels of sense of community and community engagement outside of one's cultural/ethnic group. Although LFS participation and acculturation were not significantly correlated, a significant indirect effect was found between these two variables (standardized indirect effect = .09). Community engagement with others outside of one's cultural/ethnic group was a best-fit mediator between LFS participation and acculturation level. In other words, greater acculturation levels were partially explained by individuals engaging in LFS with people outside of their cultural/ethnic group in the community. This indicates that LFS may be a successful integration strategy for Latino immigrants; as immigrants engage in LFS and interact with the greater community, new social relationships and networks can be formed and maintained, and higher levels of acculturation may be obtained.

Findings also indicate that LFS participation is partially dependent on location and ease of access to such food sources. Proximity to local food sources was one significant predictor of LFS participation, in addition to opportunities for social experiences. Other food source characteristics, such as cost of food, healthfulness/quality of available food, and familiarity with food, were not found to be significant predictors of LFS participation. A majority of participants

were unaware of community gardens or farmers markets in their community (n=95, 80.1%; n=91, 77.8%), which may suggest that LFS sources are far away and inaccessible. LFS food sources were the least utilized sources among the study sample. Table 2 displays the means for different food source frequency of use; higher means indicate more frequent use of food sources.

*Table 2. Frequency of Use of Different Types of Food sources*

| Type of Food Source | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Local foods source | 118 | .33 | 5.83 | .9209 | .77708 |
| Conventional source | 118 | .50 | 6.00 | 4.7712 | 1.23455 |
| Neighborhood store source | 117 | .00 | 6.00 | 2.6410 | 1.93743 |
| Alternative source | 118 | .20 | 5.60 | 2.3042 | 1.22606 |
| Valid N (listwise) | 117 | | | | |

Findings also indicate serious struggles with food insecurity among this sample. The fact that nearly 57% of the study sample was identified as low to very low food secure indicates that this population is struggling with food insecurity at much greater levels than the average U.S. household and at much greater levels than the average U.S. Latino household, which have a national average of 15% and 25% food insecurity, respectively. Food insecurity level was not significantly related to LFS participation, nor was it significantly related to acculturation and community connections. Furthermore, food insecurity level was not significantly related to other possible factors like amount of time lived in the U.S. ($r=.114$, $p>.05$), household income level ($r=-.105$, $p>.05$), or employment ($r=-.068$, $p>.05$). The lack of significant correlations between food insecurity and the above mentioned variables is surprising, given that previous studies have found consistent significant relationships between these variables (Dave, et al., 2009; Sharkey et al., 2011). Due to that fact that food insecurity among this sample was not significantly related

to time in the U.S., employment status, or income level, there must be other factors within households and/or the community that are impacting this high level of food insecurity. In fact, consistent with the literature, two other variables were found to be significantly correlated with food insecurity among this sample. Number of children living in the home and use of government food assistance benefits were both positively correlated with food insecurity ($r=.207$, $p<.05$ and $r=.211$, $p<.05$, respectively). The fact that households with more children living in them are also likely to experience food insecurity is an important finding, as it provides a glimpse of the type of food environment that youth are growing up in.

Another finding consistent with previous research (Sharkey et al., 2011) was the negative relationship between food insecurity and conventional food source use ($r=-.185$, $p<.05$). This finding has a few implications. First, it is often the case that food is the least expensive at conventional sources, like dedicated grocery stores and large discount supermarkets. The fact that higher food insecure adults are not shopping at these stores as frequently may indicate that 1) cost of food is still too high and people are utilizing alternative sources, like food pantries; 2) individuals are seriously food insecure such that they are simply eating less food and not shopping frequently at conventional sources or otherwise; or 3) conventional sources are not present in certain areas of the community and people subsequently must utilize other sources or shop less frequently. As such, further research among this sample and in similar communities is necessary to explore other factors that may be related to food insecurity level, especially community-level factors impacting the availability and accessibility of food.

**Implications for Research and Practice.** Findings from this study suggest several things, and are meaningful for future research, social work professionals, and communities in general. First, the fact that food insecurity level was not significantly related to LFS participation, other major

variables, and certain demographic variables is surprising, and indicates that further studies should be conducted to continue looking at these relationships. Because food insecurity is an indicator of unhealthy, stressful living, it would be beneficial to understand how LFS, income level, and community and individual resources affect food insecurity level. Understanding this relationship could help social workers and community leaders know what kind of changes to make that would decrease food insecurity and alleviate hunger in Latino households. Further, future studies should explore ways in which an increase in local food sources in a community may help address food insecurity.

Because it was found that community engagement outside of one's cultural/ethnic group was a mediator between LFS participation and acculturation level, it can be suggested that participating in LFS may aid Latino immigrants in acculturation. LFS participation may be used as an acculturation strategy through the interactions people have with members of the community outside of their cultural/ethnic group as they engage in LFS sources, like farmers markets and community gardens. Future studies examining how often and to what extent Latino immigrants are actually engaging in LFS in the community would enable community leaders and social workers to promote the right kind of strategies to get all members of a community to engage in LFS together. While this study indicates that LFS participation may indirectly increase acculturation, it is necessary to better understand how an increase in acculturation is also related to indicators of individual and community well-being. In addition, studies examining how LFS participation impacts non-immigrant members of a community could help inform successful integration strategies.

While LFS participation is suggested to have benefits in Latino immigrant communities, the number of participants in this study who actually obtained food at LFS sources was low.

Participants most often got food from conventional food sources, like supermarkets, and were also using alternative and neighborhood store sources more often than LFS sources. Two predictors of participating in LFS were proximity to the source and potential opportunities for positive social experiences at the source. Given this finding, it can be suggested that increasing the number of LFS outlets in the community may influence greater LFS participation, and thus also provide more venues to foster community connections. Studies further examining predictors of LFS participation could be key in helping communities set up LFS that are actually utilized by residents. Doing so may not only promote healthier eating, but may also help Latino immigrants and non-immigrants create and maintain social connections.

**Limitations.** Because this was a cross-sectional design study, and due to the fact that more than half of the respondents were female and mostly recruited in school settings, the findings of this study are not generalizable. However, the importance of having access to healthy food and having opportunities for community interactions makes the replication of this study with a larger sample a worthy research endeavor. While this study was largely correlational, future longitudinal studies should look at food habits, acculturation, and community connections over time.

**Conclusion.** To summarize, this study examined the relationships between LFS participation and food insecurity level; the relationships among LFS participation, community connections, and acculturation; and the factors related to LFS participation among Latino immigrants. Findings point to the importance of LFS participation in strengthening sense of community and community engagement, which in turn were significantly related to higher levels of acculturation. Subsequent path models found that the relationship between LFS participation and acculturation was mediated by community engagement outside of one's cultural/ethnic

group. Lastly, findings indicate that Latino immigrants are more likely to participate in LFS if these sources are close to the places they live and work, and also if these sources provide positive social experiences with friends and others in the community. Study findings point to the potential value of LFS for promoting community engagement and acculturation among Latino immigrants.

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# Appendix

Survey Tools (English version)

**Food Sources:**
*In general, to what extent did you purchase or obtain food from the following sources in the past year? For each source, would you say you got your food there closer to* never, once a year, three times a year, six times a year, nine times a year, once a month, or once a week*?*

1) Farmers Market
2) Grocery Store (e.g. Smith's, etc.)
3) Superstore (e.g. Walmart, Target)
4) Fast food restaurant (e.g. McDonald's, Subway)
5) Yard/home garden
6) Relatives/friends
7) Road-side farm stand
8) Corner-store/ neighborhood Store
9) CSA (community supported agriculture)
10) Gas Station (e.g. Maverik, Chevron)
11) Food Pantry
12) Church
13) Fishing or hunting
14) Food truck/ Taco truck
15) Community garden
16) Other (specify):_____

**Importance of Food Source Characteristics:**
*People get their food from a variety of places, so we would like to know about the different factors that may influence where you get your food. In the following section, please indicate how important each factor is in choosing where you get your food* (not at all important, slightly important, moderately important, very important, extremely important).

1) Is close to your home?
2) Offers food at an affordable price?
3) Offers locally grown food?
4) Is located near other places you go (like a school, Church, work, etc.)?
5) Accepts government food assistance benefits (like food stamps or WIC)?
6) Offers food that you think is good for your health?
7) Offers the types of food that you prefer to eat?
8) Seems friendly and welcoming to you?
9) Is easy to travel to?
10) Offers food you may have eaten in your home country?
11) Is a space for you to meet new people?
12) Offers food that you know how to cook?
13) Offers food that takes little time to prepare?
14) Offers organic food?
15) Is a space for you to socialize with friends?
16) Offers fresh food?

**Community Connections Index:**

*For each of the statements below, please indicate how often in the past year you have* (never, rarely, sometimes, often)...

*Within Group Scale:*

1) Spent time with people in your community from your ethnic or cultural group when you needed a little company
2) Joined with people from your ethnic or cultural group in your community to solve community problems
3) Felt like you could make a positive difference within your ethnic or cultural group in your community
4) Looked after or showed concern for other people in your community from your ethnic or cultural group
5) Talked with people in your community from your ethnic or cultural group about your problems or difficulties
6) Volunteered in your community with people from your ethnic or cultural group
7) Made new friends with someone from your ethnic or cultural group in your community
8) Felt like you belonged within your ethnic or cultural group in your community
9) Felt like your own circumstances were similar to others from your ethnic or cultural group in your community
10) Participated in community events or activities with people from your ethnic or cultural group
11) Attended club or organizational meetings in your community for your ethnic or cultural group
12) Attended religious services with people from your ethnic or cultural group
13) Attended an informational meeting about an issue affecting people from your ethnic or cultural group in your community
14) Attended a local government or political meeting concerning your ethnic or cultural group
15) Felt close to other people in your community from your ethnic or cultural group

*Outside Group Scale:*

1) Spent time with people in your community outside of your ethnic or cultural group when you needed a little company
2) Joined with people from your community outside of your ethnic or cultural group to solve community problems
3) Felt like you could make a positive difference in your community among people outside of your ethnic or cultural group
4) Looked after or showed concern for people in your community outside of your ethnic or cultural group
5) Talked with people in your community outside of your ethnic or cultural group about your problems or difficulties
6) Volunteered in your community with people outside of your ethnic or cultural group
7) Made new friends with someone in your community outside of your ethnic or cultural group
8) Felt like you belonged with people in your community outside of your ethnic or cultural group
9) Felt like your own circumstances were similar to others in your community outside of your ethnic or cultural group
10) Participated in community events or activities with people outside of your ethnic or cultural group
11) Attended club or organizational meetings in your community with people outside of your ethnic or cultural group
12) Attended religious services with people outside of your ethnic or cultural group
13) Attended an informational meeting about an issue affecting people outside of your ethnic or cultural group in your community
14) Attended a local government or political meeting concerning people outside of your ethnic or cultural group
15) Felt close to people in your community outside of your ethnic or cultural group

**U.S. Adult Food Security Module:**
*How true is each of the following statements for your household, in the past 12 months?*(often true, sometimes true, never true)

1) "I worried whether our food would run out before I got money to buy more"
2) "The food that we bought just didn't last, and we didn't have money to get more"
3) " We couldn't afford to eat balanced meals"

*In the past 12 months, did you ever…*(yes/no)
4) Eat less than you felt you should because there wasn't enough money to buy food?
5) Feel hungry but didn't eat because you couldn't afford to buy food?
6) Lose weight because there wasn't enough money for food?

*In the past 12 months, did you or other adults in your household*…(yes, almost every month; some months but not every month; only 1 or 2 months; no)
7) Cut the size of your meals or skip meals because there wasn't enough money for food?
8) Ever not eat for a whole day because there wasn't enough money for food?

**Acculturation Rating Scale for Mexican Americans (ARSMA) – II for Children and Adolescents:**
*For each of the statements below please fill in the circle showing the answer that is truest for you* (not at all, very little, moderately, very often, almost always).

1) I speak Spanish
2) I speak English
3) I enjoy speaking Spanish
4) I associate with Anglos
5) I enjoy English language movies
6) I enjoy Spanish language TV
7) I enjoy Spanish language movies
8) I enjoy reading books in Spanish
9) I write letters in English
10) My thinking is done in the English language
11) My thinking is done in the Spanish language
12) My friends are of Anglo origin

**Demographics:**

1) What is your age?
O 18- 24 years
O 25- 34 years
O 35-44 years
O 45- 54 years
O 55- 64 years
O Older than 65 years

2) What is your gender?
O Female
O Male

3) What is your race/ethnicity? (mark all that apply)
O Black/African American
O White
O Asian/ Asian American
O Hispanic/Latino
O American Indian
O Other:_____

4) Were your parents born in the United States?
O Yes
O No, my parents were born in_____

5) Where were you born?
O United States
O Mexico
O Central America
O South America
O Caribbean
O Other:_____

6) How many years have you lived in the U.S.?
O Less than 6 months
O 1 year
O 2-3 years
O 4-6 years
O 7-10 years
O More than 10 years

7) What is your marital status?
O Now married
O Widowed
O Divorced/Separated
O Never Married
O Other

8) How many adults live in your home?
O 1 (myself)
O 2 (myself and 1 other adult)
O 3 or more adults

9) How many children under the age of 18 live in your household?
O 0
O 1-2 children
O 3-5 children
O More than 5 children

10) What is the highest level of education that you have completed?
O Less than 5 years of primary education
O 6-8 years of secondary education
O 9-11 years of secondary education
O High school diploma or GED
O Some college, no degree
O Associates degree
O Bachelor's degree
O More than a Bachelor's degree

11) What is your employment status?
O Employed full-time
O Employed part-time
O Unemployed
O Student
O Retired
O Other

12) What is the estimated total yearly income of your household?
O Less than $10,000
O $10,000 – $20,000
O $20,001- $30,000
O $30,001-$40,000
O $40,001- $50,000
O More than $50,000

13) Does anyone in your household receive government food assistance? (mark all that apply)
O No
O Yes, SNAP (Food Stamps)
O Yes, WIC (Supplemental Nutrition Program for Women, Infants, and Children)
O Yes, free or reduced price school meals
O Yes, other:_____

14) Who does most of the food shopping in your household?
O Myself
O My spouse
O Another adult in the house
O Other:_____

15) How often have you engaged in vegetable/fruit gardening in your life?
O Never
O 1-2 seasons
O 3-5 seasons
O 5- 10 seasons
O More than 10 seasons

16) In what city do you currently live?
_____

17) What is the zip code for where you currently live? _____